Focus on Secondary Waste

Ecology's View

Secondary waste is part of the tank treatment life cycle, and the U.S. Department of Energy (USDOE) must do a better job of evaluating the treatment, storage, and management of those wastes.

What the Draft EIS Says

The draft EIS outlines approaches and alternatives to treat, manage, and store wastes. In each alternative, no matter what is done, secondary waste will result.

Several constituents of potential concern (COPCs) will exceed safe levels in groundwater. Thresholds for the COPCs are based on the federal Clean Water Act and Safe Drinking Water Act, and Washington state regulations to protect human health. The health-based thresholds for radionuclides and chemicals are presented in the EIS tables O-4 and O-5. Most of the health impacts result from:

- Tritium
- Iodine-129
- Technetium-99
- Uranium-238
- Chromium
- Nitrate
- Total uranium (All forms of uranium, radioactive or not, are chemically toxic).

These COPCs contaminants are common to all alternatives in the draft EIS.

MORE INFORMATION

The Tank Closure & Waste Management Environmental Impact Statement (EIS) will support decisions for the final cleanup of much of the waste at Hanford – the tank farms, the rest of the waste in the tanks, and the Fast Flux Test Facility.

It also analyzes impacts to groundwater from waste disposal activities to determine whether it is safe for Hanford to dispose of more wastes.

Comments accepted through March 19, 2010.

Please send your comments to

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Persons with hearing loss, call 711 for Washington Relay Service.

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Examples of Secondary Waste

Retrieving and treating tank wastes creates other wastes, which we call secondary wastes. These are low-level waste, mixed low-level waste, transuranic waste, or hazardous waste. They can be liquid or solid.

Liquid waste sources include process condensates, scrubber wastes, vessel and line washes, floor drain and sump wastes, and decontamination solutions.

Solid waste sources include worn filters, spent ion exchange resins, failed or worn equipment, debris, analytical laboratory waste, and spent carbon adsorbent.

What are the Impacts?

Even under the best of conditions, the impact of secondary waste to groundwater is significant. For example, Table O-54 (page 69 in Appendix O of the draft EIS) shows that technetium-99 is at 400 pCi/L, about half of the drinking water standard of 900 pCi/L. Iodine-129 is at 1.4 pCi/L, above the drinking water standard of 1.0 pCi/L.

In the draft EIS, USDOE calculated these values using an infiltration rate of 0.9 millimeters (mm) per year. The draft EIS also conducted a sensitivity analysis at higher infiltration rates (5 mm). At this higher rate in general peak concentrations would be sooner and higher. This further emphasizes that secondary waste is a problem to groundwater and needs to be mitigated.

Ecology's Analysis

In some alternatives, the amount of secondary waste, and the wide variety of waste types and form, is significant. USDOE must improve its evaluation of the management of secondary wastes. The draft EIS should address treatment, specific mitigation measures, and safe storage. USDOE must ensure:

- The mitigation for secondary waste must be to develop a robust waste form(s) that reduces the impacts to groundwater as much as possible.
- The amounts of secondary waste are as small as possible, with minimal amounts of hazardous and radiological constituents.
- The waste forms meet Land Disposal Restrictions requirements.

Impacts to groundwater can eventually reach the Columbia River.

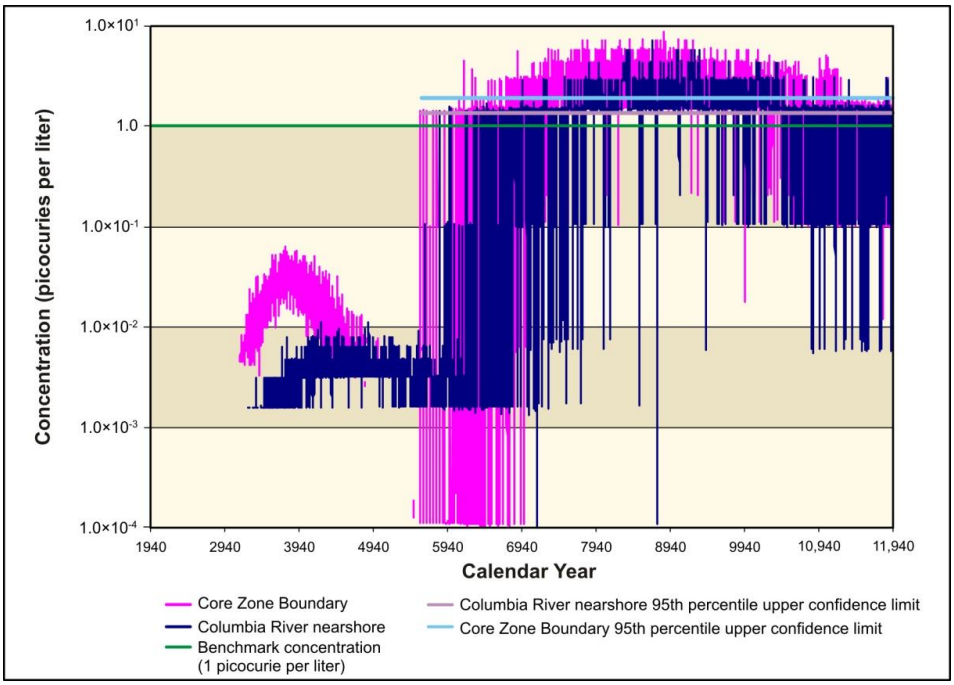

Figure 5-379 from the draft EIS, showing iodine-129 concentration versus time.

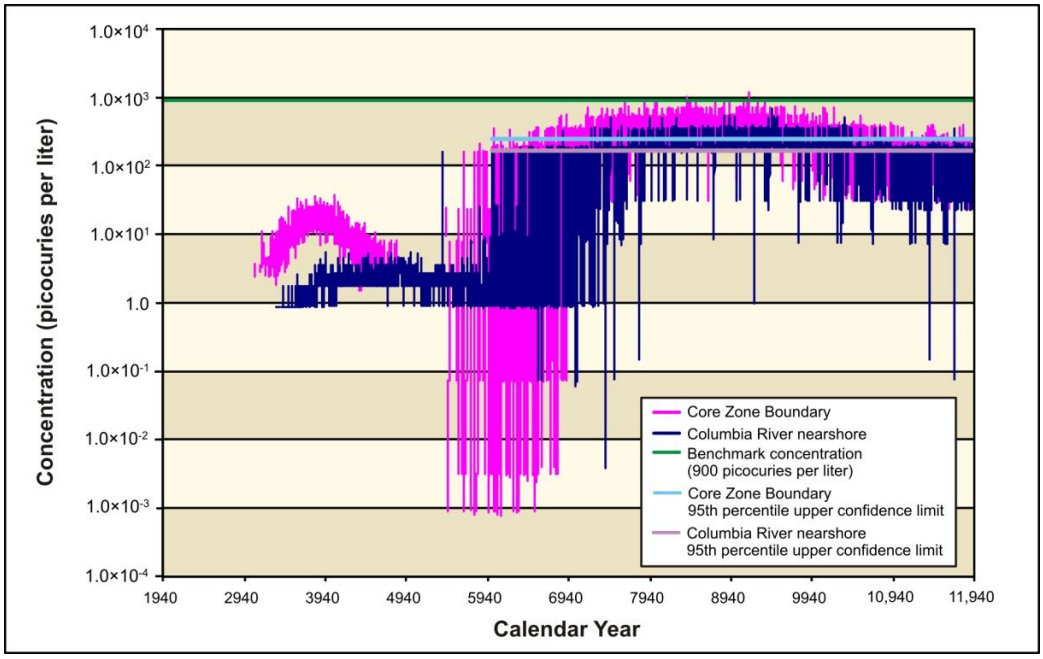

Figure 5-380 from the draft EIS, showing technetium-99 concentration over time.

Figures 5-379 and -380 from the draft EIS show impacts to groundwater at the core zone boundary and near the Columbia River. Iodine-129 levels would exceed drinking water standards and technetium-99 levels would be very close to drinking water standards for thousands of years. These figures clearly show why secondary waste needs robust mitigation.

View the TC&WM EIS online at http://www.gc.energy.gov/nepa or www.hanford.gov